

## 5.0 NEED FOR THE PROPOSED ACTION

EKPC's existing Avon 345-138 kV autotransformer flow has increased significantly from previously seen levels because of the following factors:

- The addition of the 268 MW Gilbert Unit at the Spurlock Generating Station;
- The new connections of the Spurlock 345 kV bus to the Stuart-Zimmer 345 kV line;
- The addition of series reactors in the Spurlock-Kenton 138 kV circuits;
- Dispatch changes in neighboring control areas due to the Midwest Independent System Operator Midwest Market start-up; and
- Dispatch changes in neighboring control areas due to new membership in the Pennsylvania – New Jersey – Maryland Interconnection.

Two other ongoing factors that have a major impact on the Avon transformer loading are:

- The continued typical transfer patterns of power from north of Kentucky to south of Kentucky; and
- The reliance of EKPC on economic power purchases to avoid dispatching combustion turbines (CTs) at the J.K. Smith Generating Station.

The combined impact of all of the above factors has resulted in the Avon 345-138 kV transformer average power flow exceeding its summer continuous rating on numerous occasions in the May-August 2005 period. The overloading experienced by the transformer was as much as 9% over the summer continuous rating.

In addition to the actual operating problems, power flow analysis indicates that the potential for overloading exists in the future. The power flow analysis was performed for the 2006-2009 period for a variety of load levels and dispatch scenarios both with, and without, north-south transfers. The results of the power flow analysis indicate that potential overloads of the Avon transformer could occur for a wide range of load levels in the summer, depending on the CT dispatch and north-south transfer levels. These overloads were found to be as high as 112% of the summer continuous rating. The future energy flows through the Avon transformer will be heavily influenced by the addition of another 268 MW unit at Spurlock

(Unit #4) in 2008. No additional outlets are planned out of the Spurlock Substation to coincide with this unit addition. Several unit additions are also planned for the J.K. Smith generating site, including five new 100 megawatt (MW) combustion turbine electric generating units and a new 278 megawatt coal fired electric generating unit. Therefore, the existing outlets, including the Spurlock-Avon 345 kV line/Avon 345-138 kV transformer will become more heavily loaded after these additions.

Besides the overloads that have been experienced on the existing Avon transformer and that are expected to continue in the future, two other potential problems currently exist in the area:

- The potential economic impact due to a failure of the Avon transformer; and
- Potential instability of the existing combustion turbine units at J.K. Smith.

A power flow analysis indicated that as many as 26 overloads could occur with the Avon transformer out of service at a 70% load level. The most severe overload identified was in excess of 137%. Further analysis indicates that the Spurlock Generating Station output would need to be reduced by 390-620 MW, depending on the level of north-south transfers. These reductions would be required to operate the remaining transmission system within all applicable limits while the Avon transformer is out of service. Therefore, a failure of the Avon transformer would limit the Spurlock Station output to only 48-68% of its maximum capability. The potential economic impact if EKPC were required to operate under these conditions for one month ranges from \$14,000,000 to \$22,000,000.

Stability studies of the existing J.K. Smith combustion turbine units indicate that instability exists for certain disturbances. The most critical disturbance is a fault on the J.K. Smith-Dale 138 kV line followed by a breaker failure that results in the J.K. Smith-Fawkes 138 kV line tripping. For this case, severe instability of the units at J.K. Smith is observed.

The importance of correcting this problem has increased as the CT generation at the J.K. Smith Station has become a larger percentage of EKPC's total capacity and as the ability to import power into the EKPC system has become less certain.

## **6.0 ALTERNATIVES**

A number of alternatives were investigated by EKPC for correcting the electrical problems outlined above in Section 5.0 *NEED*, including *no action*, alternate routes and substation sites, and other electrical alternatives. Energy conservation was not considered by EKPC as an alternative to the proposed transmission project because energy conservation could not resolve the overloading and reliability issues outlined in Section 5.0 *NEED*.

### **6.1 ELECTRICAL ALTERNATIVES**

EKPC investigated a number of electrical alternatives designed to correct the problems associated with the Avon transformer overloading, the potential risks of the Avon transformer failure, and the potential instability of the J.K. Smith CT units, as outlined above in Section 5.0 *NEED*. The following alternatives were evaluated by EKPC that addressed one or more of these problems:

1. Replace the existing Avon transformer with a unit with a higher rating;
2. Install a second Avon transformer in parallel with the existing unit;
3. Construct J.K. Smith-Avon 345 kV and install a 345-138 kV transformer at J.K. Smith;
4. Construct J.K. Smith-Sideview 345 kV and install a 345-138 kV transformer at J.K. Smith (*the proposed alternative*);
5. Construct Spurlock-Renaker 345 kV and install a 345-138 kV transformer at Renaker;
6. Convert the existing Spurlock-Renaker 138 kV line to 345 kV and install a 345-138 kV transformer at Renaker;
7. Convert the existing Spurlock-Avon 345 kV line to 138 kV;
8. Construct a new 138 kV line from Spurlock to Avon;
9. Construct a new 138 kV line from Flemingsburg to Avon; and
10. Perform switching and/or generation re-dispatch to mitigate the Avon transformer overload.

The analysis of the ten alternatives indicated that Alternatives 1, 2, 3, 4, 7, and 10 effectively address the Avon transformer overloads, while alternatives 5, 6, 8, and 9 did not. However, Alternatives 1, 2, 7, and 10 all have drawbacks that made them undesirable. Alternatives 3 and 4 are desirable because they both eliminate the Avon transformer issues and the J.K. Smith unit instability, and provide an additional outlet for future generation expansion at J.K. Smith.

Therefore, Alternatives 3 and 4 were compared to identify the more desirable alternative to be implemented. The alternatives were compared with regard to the following items:

- Power Flow Impacts;
- Transmission System Losses;
- Transient Stability Impacts;
- Short Circuit Impacts;
- Physical Issues;
- System Reliability;
- Future Expansion; and
- Costs.

The results of the comparison indicated that Alternative 4 is equal to or better than Alternative 3 with regard to all of these items other than the cost of construction. The cost of Alternative 4 is approximately \$30.2 million compared to \$28.6 million for Alternative 3, a difference of approximately 5%. Alternative 4 holds a clear advantage with regard to the other factors considered. This alternative would provide a direct 345 kV path from EKPC's Spurlock Generating Station to its J.K. Smith Station that would facilitate the flow of EKPC's generation from Spurlock to the load centers in the vicinity of J.K. Smith. Alternative 4 would also better accommodate regional power flows that are occurring and that will continue to occur. Furthermore, the addition of the 345kV-138kV transformers at the J.K. Smith

Generating Station would provide additional transformation in the area, which would alleviate overloading of the existing Avon 345-138 kV transformer. Therefore, EKPC determined that the advantages associated with Alternative 4 (*the proposed project*) justifies the additional expenditures and recommended this alternative be constructed to resolve the issues outlined in Section 5.0 *NEED*.

## **6.2 NO ACTION**

Choosing the *no action* alternative would involve maintaining the status quo and not constructing the project, as proposed. Alternative 10 outlined above is the *no action* alternative, which would be to use transmission-switching procedures and generation re-dispatching to deal with the system overloads, as these overloads are currently being handled. The problems that are being addressed with the proposed project have occurred on numerous occasions and will continue to increase in severity if steps are not taken to prevent this from happening. Transmission-switching procedures are not a viable solution because any switching procedures effective in reducing the electric energy flows on the Avon transformer result in overloads and under-voltages elsewhere on the electric transmission system. As a result, generation re-dispatching would be required at an estimated annual incremental cost of \$6 to \$13 million. EKPC is a nonprofit organization that provides wholesale electric power to its electric distribution system members and EKPC has a responsibility to continue to supply electric power to its members at a reasonable cost. Choosing the *no action* alternative and incurring annual generation re-dispatching costs such as those outlined above would not be a responsible choice by EKPC and would ultimately result in an increase in its wholesale power rates to its members. Therefore, EKPC determined that the *no action* alternative was not a viable alternative to the proposed project.

### 6.3 ALTERNATE ROUTES

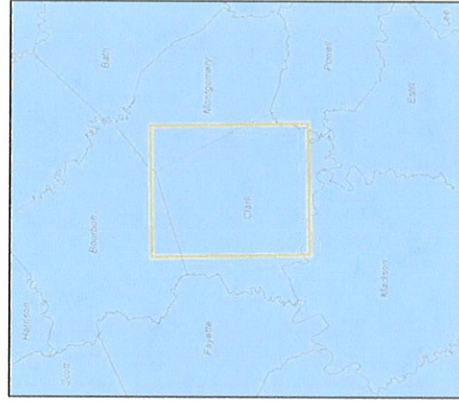
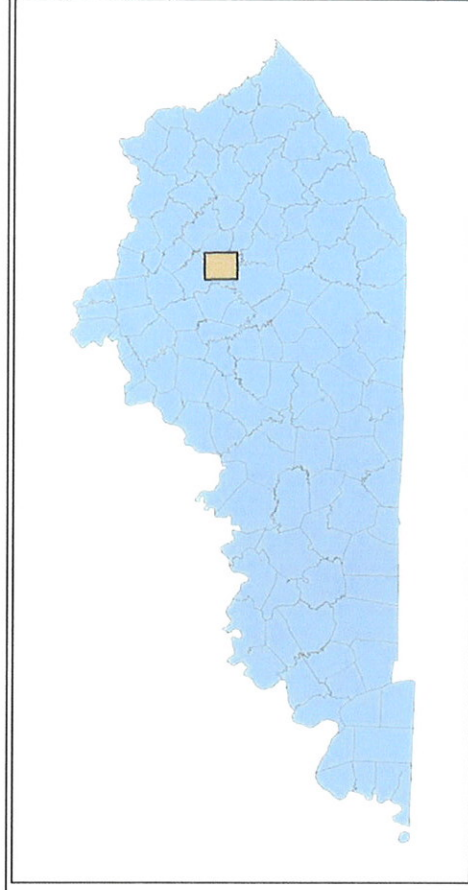
EKPC investigated five alternate routes for the proposed new transmission line, including the proposed route (See *Alternate Routes Map*, page 19). All of these alternate routes utilize portions of an existing electric transmission line ROW, with the proposed route utilizing the existing ROW for almost its entire length (See Table 6.5.a for comparison of alternate routes). Only three sections of the proposed route would *not* utilize the existing ROW:

- a 3,751-foot section on the northern end of the proposed route, 1,693 feet of which would be on land owned by EKPC and associated with the proposed North Clark County Substation site;
- a 6,969-foot section near the southern end of the route that was located off the existing ROW due to a request of a property owner, which involved an adjustment only on that landowner's property; and
- a 3,977-foot section on the southern end of the route that would be located on land owned by EKPC and associated with the J.K. Smith property.


Table 6.5.a – *Alternate Route Comparison (estimates)*

<i>Alternate Routes</i>	<i>Clearing Required (acres)</i>	<i>Miles on Existing ROW (rebuild)</i>	<i>No. Stream/River Crossings</i>	<i>Wetland Areas (acres spanned)</i>	<i>Floodplain Areas (acres spanned)</i>
<i>A</i>	42.3	0	20	2.9	11.4
<i>DZ</i>	61	2.3	18	1.7	3.8
<i>EE</i>	53.8	4.9	16	0.4	4.4
<i>ES</i>	39.3	7.6	18	0.8	5.2
<i>FL (Proposed)</i>	57.7	15.9	24 (existing)	0.5 (existing)	5.5 (existing)

EKPC is recommending the proposed route for the construction of the new transmission line due to scheduling reasons and because it would be the least disruptive within the project area, of the routes investigated. Based on the power flow analysis described in Section 5.0 *NEED FOR THE PROPOSED ACTION*, EKPC has determined that if it cannot meet its system's electrical demand for the summer of 2007 it will cost from \$1.2 to \$25.3 million in redispatching costs. The proposed transmission line is imperative in helping EKPC meet this demand and EKPC determined that the proposed route could save



## Legend

- Existing Transmission
-  EKPC Generation Plant
- Route FL (Proposed Route)
- Route A
- Route DZ
- Route EE
- Route ES

# J.K. Smith - North Clark 345kV Transmission Line *Alternate Routes Map*

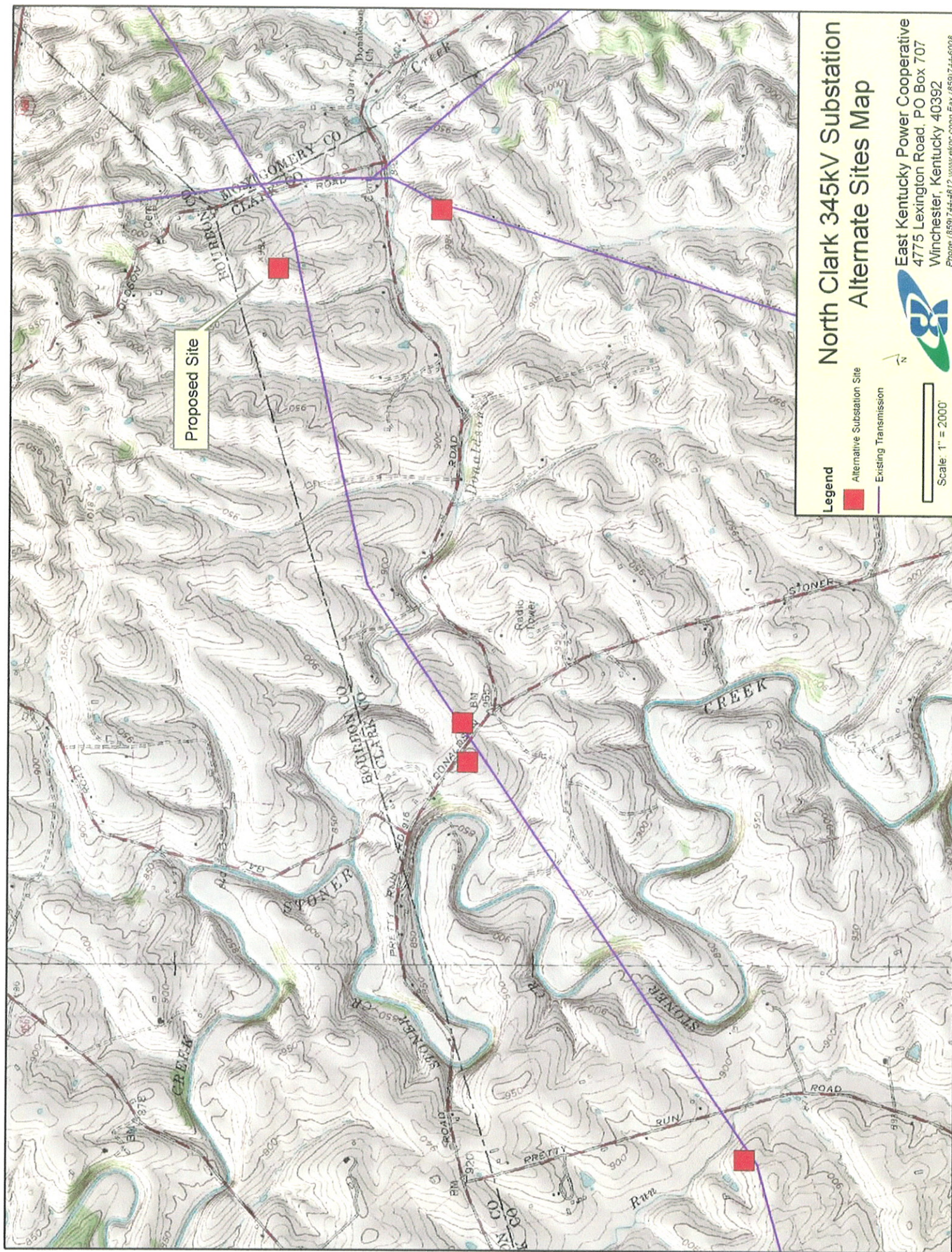


approximately four months in pre-construction licensing, as compared to the other routes. The construction of the transmission line within the proposed route is considered a rebuild by the Kentucky Public Service Commission and would not have to go through the certification process. The construction of the line in the other alternate routes investigated would have to go through the certification process and would require a considerable more amount of pre-construction lead-time. The proposed route would also require considerably less ROW acquisition than the other routes investigated, thereby reducing the amount of time should it take to acquire easements. Additionally, since the majority of proposed route is located on existing electric utility line ROW and would only require an additional 50 feet in ROW width, the proposed route require significantly less ROW clearing and would be less disruptive to the project area. The proposed route would require approximately 42 percent less ROW clearing than the alternate route requiring the second least amount of clearing and approximately 63 percent less ROW clearing than the alternate route requiring the most amount of clearing.

#### **6.4 ALTERNATE SUBSTATION SITES**

EKPC investigated a number of alternate sites for the proposed new North Clark County Substation (See *Alternate Sites Map*, page 21) including a south of the proposed site along the southern side of Donaldson Road. Upon investigating this site EKPC determined that the property owner would not sell the property for a reasonable price and access to the site would require a bridge across Donaldson Creek, adding approximately \$100,000. to the cost of the project. This alternate site would also require a double circuit transmission line to be constructed from the proposed site to the existing transmission line located north of the site, which would add to the construction costs and reduce reliability, as compared to the proposed site. As a result, EKPC eliminated this alternate site from consideration.





# North Clark 345kV Substation Alternate Sites Map

## Legend

Alternative Substation Site

Existing Transmission



Scale: 1" = 2000'



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The following sites were initially investigated as alternate sites for the proposed new substation, but they eliminated from further review once the decision was made to utilize the existing 100-foot wide electric transmission line ROW easements:

- Pretty Run Road Substation Site; and
- 2 sites, one on either side of Donaldson Road, near the intersection with Stoner Road.

Alternate substation sites were not investigated for the proposed new J.K. Smith 345 CT Yard Substation because this substation is being proposed for location on industrial land currently owned by EKPC and associated with its existing J.K. Smith Generating Station.

## **7.0 EXISTING ENVIRONMENT**

The proposed project area is located in Clark County in central Kentucky on the border of the Inner and Outer Blue Grass regions, which are characterized by rolling hills and sloping valleys. Forests in this region are primarily second and third-growth hardwood forests composed of oaks (black, northern red, southern red, and white) and hickories (bitternut, pignut, and shagbark). The topography along the northern portion of the proposed transmission line route is composed of very gently rolling hills, while the southern portion is comprised of moderately sloping hills and valleys, with the more steeply sloping terrain associated with the stream valleys.

The majority of the proposed route for the Smith to Sideview Transmission Line is located on existing electric utility line ROWs. One small section located on the northern end of the proposed route and two separate sections located along the southern portion of the proposed route, totaling approximately 12 percent of the total length of the route, would not be located on existing ROW. The majority of the proposed route extends through agricultural

land primarily used as pastureland, intermixed with wooded lands and scattered rural residential development. Approximately 17 percent of the proposed route would require clearing. Most of the clearing that would be performed would be due to the widening of the existing 100-foot wide utility ROW to 150 feet. The majority of the wooded areas that would require clearing are located on a few hilltops along the southern end of the proposed route and at stream crossings. The typical species found on the hilltops include sugar maple (*Acer saccharum*), shagbark hickory (*Carya ovata*), black cherry (*Prunus serotina*), black oak (*Quercus velutina*), white oak (*Quercus alba*), and black locust (*Robinia pseudo-acacia*). Dominant tree species at the proposed stream crossings include sycamore (*Platanus occidentalis*), box elder (*Acer negundo*), and green ash (*Fraxinus pennsylvanica*).

The proposed North Clark County Substation site is currently agricultural land being used as pastureland composed of open field with a few scattered deciduous trees and deciduous trees along fencerows (See FIGURES 1 & 2, page 24). The site is immediately adjacent to an existing electric transmission line and there is an existing electric distribution substation located in close proximity to the site near the northwestern corner of Donaldson and Oldson Roads. There is also some scattered rural residential development, generally located along the roads. The proposed site of the J.K. Smith 345 CT Yard Substation is located on industrial land associated with the J.K. Smith Electric Generating Station. The site has been graded and filled in association with past construction activity associated with the generating station and is devoid of vegetation (See FIGURES 3, page 25). Access to the generating station and the proposed substation construction site is achieved through a gated entrance drive manned by a security guard. No houses are located near the proposed substation construction site.

**FIGURE 1**



View of the proposed North Clark County Substation site from near the northern edge of the site looking southerly.

**FIGURE 2**



View of the proposed North Clark County Substation site from near the southern edge of the site looking northerly.

### FIGURE 3



View of the proposed J.K. Smith 345 CT Yard Substation site from near the southern edge of the site looking northerly.

The proposed transmission line route crosses the Donaldson Creek, Stoner Creek, Cabin Creek, East Fork Four Mile Creek two times, Long Branch, Indian Creek, and Upper Howard Creek. The proposed route also crosses a few intermittent tributaries of these creeks. None of the creeks listed above are recognized by the U.S. Army Corps of Engineers (Corps) as being navigable in the proposed project area (See Corps response at top of e-mail from Mr. Gary W. Gilpin, GILPIN GROUP, to Ms. Lee Anne Devine, Corps, January 15, 2006, Appendix C), and none are designated as being Outstanding Resource Waters, Cold Water Aquatic Habitats, National, or Wild and Scenic Rivers, or special water resources (See e-mail from Mr. Randy Payne, Kentucky Division of Water to Mr. Gary W. Gilpin, GILPIN GROUP, March 4, 2006, Appendix C).

Common wildlife species in the project area include white-tailed deer, wild turkey, gray squirrel, cardinals, Carolina wrens and robins. Threatened and endangered species that could potentially occur within the project impact area include running buffalo clover

(*Trifolium stoloniferum*), as well as, the Indiana bat (*Myotis sodalis*) and gray bat (*Myotis grisescens*) which are all federally listed endangered species (See U.S. Fish and Wild Service letter from Mr. Virgil Lee Andrews, Jr. to Mr. Gary W. Gilpin, GILPIN GROUP, January 30, 2006, and Ky. Dept. of Fish & Wildlife Resources letter from Mr. Doug Dawson to Mr. Gary W. Gilpin, GILPIN GROUP, January 26, 2006, Appendix C).

A review of the *National Wetland Inventory Maps (NWI Maps)* for the proposed project area revealed that the proposed route for the new transmission line crosses the following recognized wetlands identified on the maps:

- riverine lower perennial unconsolidated bottom wetland associated with Donaldson Creek;
- riverine intermittent streambed wetland associated with an intermittent tributary of Donaldson Creek;
- riverine lower perennial unconsolidated bottom wetland associated with Stoner Creek;
- riverine lower perennial unconsolidated bottom wetland associated with Cabin Creek;
- riverine intermittent streambed wetlands associated with two intermittent tributaries of Little Stoner Creek;
- riverine lower perennial unconsolidated bottom wetlands associated with East Fork Fourmile Creek;
- riverine lower perennial unconsolidated bottom wetland associated with Indian Creek; and
- riverine lower perennial unconsolidated bottom wetland associated with Upper Howard Creek.

The review of the *NWI Maps* also revealed that the proposed route crosses three small isolated palustrine unconsolidated wetlands, one north of Cabin Creek, one east of Dry Fork Road, and one south of Red River Road. No wetlands identified on maps are shown on the proposed site for the J.K. Smith 345 CT Yard Substation and one small palustrine unconsolidated bottom wetland (farm pond) is shown near the southeastern corner of the proposed site for the North Clark County Substation. A field investigation of the proposed site revealed that no such wetland exists on the proposed substation site.



A review of *Flood Insurance Rate Maps* (Community Panel Numbers 2102780050B, 2102780100B, 2102780057B, 2102780059B, & 2102780075B) revealed that the proposed transmission line route crosses *Special Flood Hazard Areas* associated Donaldson Creek, Stoner Creek, Cabin Creek, East Fork Fourmile creek, an unnamed tributary of Fourmile Creek, and Upper Howard Creek, which are inundated by 100-year floods. The floodplains areas are fairly narrow and extend all creeks through the project area. Both proposed substation sites are located in areas identified as *Zone C* on the maps, which are areas of minimal flooding, not subject to 100 or 500-year floods.

The *Soil Survey, Clark County, Kentucky*, map sheets 3, 6, 7, 10, 15, 21, 27, & 33, were reviewed regarding the proposed electric transmission project in relation to prime and statewide important farmland soils. Based on this review it was determined that portions of the proposed transmission line route are composed of soils recognized as prime and important farmland soils. It was also determined that a portion of the proposed North Clark County Substation site is composed of Hampshire silt loam (2 to 6% slope) which is recognized as a prime farmland soil, and Hampshire silt loam (6 to 12% slope) which is recognized as a statewide important farmland soil. None of the soils present on the substation site are recognized as hydric. The proposed site for the J.K. Smith 345 CT Yard Substation has been filled and graded as a result of prior construction activities at the generation station site and no farmland or hydric soils currently exist at the site.

No developed recreational facilities, such as campgrounds or recognized hiking trails, are located in the vicinity of the proposed route for the electric transmission line. However, incidental recreational activities, such as hiking and hunting could take place within the project area.



## 8.0 ENVIRONMENTAL CONSEQUENCES

### 8.1 AIR QUALITY

Exhaust from the engines of the machinery used to construct the proposed project may increase emissions in the proposed project area on a short-term basis. However, the components of exhaust are volatile and would probably move out of the immediate project area within a short period of time. Additionally, it is doubtful that the exhaust from such machinery would contribute to the overall budget of ozone, nitrogen oxides, aldehydes or other noxious substances.

The dust associated with the proposed construction activity could have a small potential for affecting the air quality of the immediate project impact area. This source of air quality degradation, however, would not be anticipated to have any significant effect on the area. Any dust associated with construction activities would be short-term, lasting only through the construction phase of the project. Additionally, vegetation would be cut from the proposed ROW and the areas denuded of vegetation would be very small. As a result, the amount of air quality degradation associated with fugitive dust would be negligible and once construction is completed there would be a return to ambient air quality conditions in the immediate vicinity of the project impact area. No dust would be associated with the maintenance of the proposed project once the construction activities are completed. The ROW would be maintained by a foliar method of herbicide application possibly combined with some vegetation cutting, which would not produce any dust.

The herbicides proposed for use would not have any affect on the air quality of the project area. The applicators would be trained and licensed for the application of herbicides, and herbicide label directions would be strictly followed. Herbicide applications would also

be made in accordance with the Kentucky Division of Pesticides, and applicators would monitor weather conditions and would postpone or suspended applications when conditions become unfavorable as outlined below:

Application Method	Temperatures Higher Than (°F)	Humidity Less Than (%)	Wind (at Target) Greater Than (MPH)
Hand (cut surface)	n/a	n/a	n/a
Hand (other)	98	20	15
Mechanical (ground)	95	30	10
Aerial	95	30	5

## **8.2 WATER QUALITY**

The proposed construction activity associated with the proposed electric transmission project would not have any direct effects on rivers and streams. The proposed transmission line would span all of the watercourses involved, with no support poles placed within the channels, and none of the construction equipment or vehicles would be permitted to ford any of the creeks or streams in the project area.

The proposed project could have a small potential for water quality degradation of the streams due to the erosion of soils in association with water runoff on the construction sites. Vegetation removed from the proposed transmission line ROW would be cut from the ROW, leaving roots intact to aid in holding soils in place. However, mechanical cutting methods of ROW clearing associated with the proposed project could potentially increase nutrients, storm flows, and sediment loads of the streams within the project area. Generally, the amount of increase depends on the degree of disturbance, the topography of the area, and the type of soil involved. The manual cutting methods of the transmission line construction would not substantially increase storm flow volumes and peaks because plant water use would be minimally affected. The manual methods would not increase nutrients or sediment loads of the streams in the project area because litter and duff would be left intact. Additionally, of the

roughly 339.6 acres of land that would make up the ROW for the new proposed transmission, approximately 192.7 acres are currently being used as an electric utility line ROW and would require minimal, if any, ROW clearing because electrical clearance between the vegetation and the electrical conductors already exist.

The activity associated with the construction of the North Clark County Substation could affect the water quality of the area, especially the grading activities that would be required to make the site level. The construction activity associated with the J.K. Smith 345 CT Yard Substation would not be expected to have any significant effect on water quality because the site was filled and graded level as a result of previous construction activity at the generating station.

To aid in protecting the water resources of the project area from sedimentation EKPC would be preparing Stormwater Prevention Pollution Plans for both substation sites which would employ accepted erosion control practices and would incorporate *Best Management Practices* (BMPs) into the proposed project to control stormwater runoff and sediment damage to water quality. These erosion control practices would include the utilization of silt barriers, such as, siltation fences and/or straw bales around disturbed areas associated with the substation sites and around any disturbed areas along the proposed transmission line ROW in the vicinity of the streams to filter runoff water. To aid in protecting the water quality of the project area EKPC also would not initiate required land-clearing activities until absolutely necessary to reduce the amount of time bare soils are exposed to wind and water erosion. Additionally, areas of soil disturbance by the proposed construction activity would be temporary, lasting only through the construction stage of the project, and all disturbed areas would be stabilized and revegetated, as soon as practicable, once construction is completed.

The proposed project could further cause water quality degradation if vegetation cut from the proposed ROW during the construction phase of the project falls into stream channels. To mitigate this potential form of degradation, any vegetation falling into the creeks or streams during construction would be removed and pulled back from the channels.

The proposed project could have a potential of affecting water quality within the project area from the herbicides used on the proposed ROW entering surface water during maintenance operations associated with the proposed transmission line ROW. However, herbicide applications would be made in accordance with label directions and the Kentucky Division of Pesticides to guard against the contamination of water resources within the proposed project area. Herbicides could enter creeks and streams during treatment by direct application or drift, or within water runoff after treatment. The risk of herbicides entering surface water by direct application would be low because applicators would monitor weather conditions to aid in protecting water quality and would postpone or suspend application operations when weather conditions become unfavorable as outlined in Section 8.1 *AIR QUALITY*. Applicators would also postpone herbicide applications during occurrences of precipitation or when precipitation is predicted to protect against herbicides affecting water resources of the area through rainwater runoff. EKPC's policy prohibits herbicide applications during periods of rain or when the threat of rainfall is eminent.

In addition to surface water, groundwater could be affected by herbicide applications through the vertical seepage of herbicides into aquifers. However, the use of vegetation buffer strips is recognized as an effective mechanism to aid in guarding against herbicides within rainwater runoff from affecting water quality. Consequently, EKPC would utilize the

following buffer strips, or zones, to further aid in protecting the quality of the water resources within the proposed project area:

- no herbicide would be applied within 30 horizontal feet of lakes, ponds, wetlands, perennial or intermittent springs, seeps or streams;
- no herbicide would be applied within 100 horizontal feet of any public or domestic water source; and
- herbicide mixing, loading, or cleaning areas would not be located within 200 feet of any open water, or public or domestic water source.

Through the implementation of these mitigation measures the risk to water contamination would be minimal because the buffers would reduce herbicide concentrations through mixing and dilution.

Cumulative effects on the water resources of the area caused by the proposed electric transmission project would not be expected given the mitigation measures that would be implemented. The sediment load of the surface water caused by the proposed project would be negligible to nonexistent, given the mitigation measures described above, and the herbicides would not leach into the groundwater or run off into surrounding surface waters in significant amounts. Additionally, the proposed use of herbicides to aid in managing vegetation within the ROW for the proposed electric transmission line would involve infrequent herbicide applications in relatively small quantities, and as a result of the incorporation of the above-described mitigation measures, the use of herbicides to maintain the proposed electric line ROW would not have any measurable effects on the water resources of the project area.